Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. Claim 1 (currently amended): A method in decision system applications for collecting global or population characteristics for decision tree regulation to achieve robust decisions in spite of the application dynamics and/or errors in training data comprises the following steps:
   (a) Input a decision tree;
   (b) Input a set of training samples;
   (c) Use the training samples to determine a decision characteristic for at least one decision tree node, said decision characteristic selected from the group consisting of global characteristics and population characteristics.

Claim 2 (currently amended): The method of claim 1 wherein the population ~~decision~~ characteristics provides a prevalence independent characterization of the at least one decision tree node that compensates for unequal class prevalence in the training samples.

Claim 3 (currently amended): The method of claim 1 wherein the global characteristics and population characteristics discriminates between noise and consistent application characteristics ~~decision characteristic compensates for errors in the training data~~.

Claim 4 (original): The method of claim 1 wherein the global characteristics include global counts.

Claim 5 (original): The method of claim 1 wherein the global characteristics include global population statistic.

Claim 6 (original): The method of claim 1 wherein the population characteristics include local population statistic.

Claim 7 (currently amended): A method in decision system applications for classification regulation by information integration to achieve robust decisions in spite of the application dynamics and/or errors in training data comprises the following steps:

(a) Input a decision tree;

(b) Input a plurality of decision characteristics selected from the group consisting of global characteristics and population characteristics from at least one terminal node of the decision tree;

(c) Determine the confidence value for each of the plurality of said decision characteristics

(d) Determine an integrated confidence value for each class of said at least one terminal node.

Claim 8 (original): For a crisp tree application, the method of claim 7 further assigns the class with the maximum integrated confidence value as the decision for the terminal node.

Claim 9 (original): For a smooth tree application the method of claim 7 further uses the integrated confidence value as the likelihood value.

Claim 10 (original): The method of claim 7 wherein the global characteristics and population characteristics are selected from the group consisting of global counts, local counts, global population statistic, and local population statistic.

Claim 11 (original): The method of claim 7 wherein the confidence value is selected from the set consisting of local count confidence, local population confidence, global count confidence and global population confidence.

Claim 12 (original): The method of claim 7 wherein the integrated confidence value is a weighted combination of a plurality of confidence values.

Claim 13 (original): The method of claim 7 wherein the global characteristics have a global context coverage that is adjusted using different layer depths.

Claim 14 (original): The method of claim 7 wherein the global characteristics have a global context coverage that is adjusted on a minimum number of training samples.

Claim 15 (currently amended): A method in decision system applications for decision tree pruning regulation by information integration to achieve robust decisions in spite of the application dynamics and/or errors in training data comprises the following steps:

(a) Input a decision tree;
(b) Input a set of training samples;
(c) Generate a regulated measure selected from the group consisting of integrated confidence values and reliability measures;
(d) For a non-terminal node of the tree having two descending terminal nodes, determine the accuracy values using the regulated measure under two separate nodes or combined node conditions;
(e) If combined node accuracy value is greater than the two separate node accuracy value, prune the terminal nodes by combing the two terminal nodes and converting the associated non-terminal nodes into one terminal node.

Claim 16 (original): The method of claim 15 wherein the reliability measures include a local population reliability measure.

Claim 17 (original): The method of claim 15 wherein the reliability measures include a count reliability measure.

Claim 18 (original): The method of claim 15 wherein the reliability measures include a population reliability measure.

Claim 19 (original): The method of claim 15 wherein the reliability measures include a combined reliability measure.

Claim 20 (original): The method of claim 15 wherein the reliability measures include a global population reliability measure.

Claim 21 (canceled).

Claim 22 (original): The method of claim 15 wherein the reliability measure for the maximum class is integrated with the classification accuracy as the criteria for tree pruning.

Claim 23 (currently amended): A method in decision system applications for decision tree generation regulation by information integration to achieve robust decisions in spite of the application dynamics and/or errors in training data comprises the following steps:

(a) Input a set of training samples;
(b) For at least one node, generate a set of candidate thresholds;
(c) Partition data at a candidate threshold;
(d) Calculate an evaluation function selected from the set consisting of integrated confidence value and reliability measures;
(e) Repeat steps (c) and (d) for a plurality of partitions and Sselect the partition for the node as the one that maximizes the evaluation function.